## REMARKS

The present amendment serves to incorporate the embodiment shown in FIGS. 8A through 8C where it is shown that the planes or azimuthal anglesof the two positively anisotropic layers are at an angle of 90° to each other. See also page 8, lines 8-18. In accordance with the present claim, the claimed compensator for a VA cell is limited as to one in which the two dtilted layers are at a 90° azimuthal angle with respect to each other.

Claim 1 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant admitted prior art (AAPA) in view of US 6,081,312 (Aminaka et al), US 2004/0051832 A1 (Shimoshikiryoh), and US 5,747,121 (Okazaki et al).

A. According to the Examiner, AAPA discloses (page 1, line 11 – page 4, line 10; Fig. 4A) a vertical-aligned liquid crystal display (an imaging component) comprising:

- a vertically aligned nematic liquid crystal cell (14);
- a polarizer (18 or 12) disposed on each side of the vertical aligned liquid crystal cell (14), the polarizers (18 and 12) having polarization axes orthogonally crossed with respect to each other in a direction normal to the cell surface;
- a compensation film (27) disposed between the liquid crystal cell (14) and a polarizer (18).

B. The Examiner acknowledges that the AAPA does not expressly disclose that the compensation film comprises a first positive birefringent material disposed on a base film having negative optical anisotropy with an axis along the normal of the substrate and a second positive birefringent material disposed on the first positive birefringent material, and each of the positive birefringent materials oriented with their optic axis tilted in planes perpendicular to the liquid crystal cell surface.

C. However, the Examiner states that Aminaka ('312) discloses (col. 7, line 14 – col. 8, line 31; Fig. 5-8) that the optical compensatory sheet in Fig. 7 comprises optical anisotropic layer (73), and each of the molecules has one plane (Pa, Pb, Pc) which inclined with respect to the planes (71a, 71b, 71c), i.e., tilted in

planes perpendicular to the liquid crystal cell surface, and that Aminaka indicates (col. 8, liens 24-31) that an optical compensatory sheet has a function of improving the viewing angle and the inclined angle changed (tilted) so that the optical compensatory sheet has a function of preventing an image reversion, gray-scale inversion and color contamination of a displayed image.

D. Therefore, the Examiner concludes that it would have been obvious to those skilled in the art at the time the invention was made to arrange a compensation film combined with a vertical alignment liquid crystal cell so as to tilt the molecules as claimed for improving the viewing angle and preventing image from reversion, gray-scale inversion and color contamination of a displayed image.

E. The Examiner notes that still lacking is the limitation is such that the compensation film "having a first positive birefringent material and a second positive birefringent material disposed on the first positive birefringent material" but Shimoshikiryoh discloses (paragraph 0134-0135; Fig. 4) that the phase difference compensator (102) (as a second birefringent material) and the phase different compensator (104) (as a first birefringent material), so that is a second birefringent material dispose on a first birefringent material, and the phase difference compensator (102) typically has a positive uniaxial refractive index anisotropy, and the phase difference compensator (104) typically has a biaxial refractive index anisotropy, that means the birefringent also can be positive birefringent material. Shimoshikiryoh indicates (paragraph 0135) that using such compensation provides a display with desirable viewing angle characteristics.

F. Therefore, the Examiner concludes, it would have been obvious to those skilled in the art at the time the invention was made to arrange a compensation film comprises two positive birefringent material as claimed for achieving a desirable viewing angle characteristics.

G. The Examiner notes that still lacking is that the first positive birefringent material disposed on a negative base film. However, Okazaki discloses (col. 2, lines 12 – 41) that it is known that the optical compensatory sheet is needed to have negative birefringence for compensating positive birefringence of the twisted nematic liquid crystal and an inclined optical axis. Such that the compensation film is needed to have a positive birefringence for

compensating the negative optical anisotropy with an axis along the normal of the substrate, and that would have been at least obvious variation. Okazaki also discloses (col. 2, lines 27 – 41) that it also is known the optical compensatory sheet for LCD is prepared on a support film (base film) to support the compensation film. Since the compensation film must have a base film to support the compensation film and the positive birefringent material must compensate the negative optical anisotropy material so that to enlarge the viewing angle of the display. Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange a compensation film as claimed in claim 1 for improving the viewing angle of the display and preventing image from reversion, gray-scale inversion and color contamination of a display image.

**Applicants' response to the rejection in paragraphs C and D**

In paragraph C and D, the Examiner relies on Aminaka, col. 7, line 14– col.8, line 31; Fig. 5-8 and col. 8, lines 24-31. The Examiner does not mention that the compensation film according to Aminaka is made of a discotic compound. (see col. 7 line 18; line 20; line 31; line 34; line 45; also col. 8, line 5). As is well known in the art, the discotic (disk shaped) compound has a negative birefringence, which teaches away from the present invention of using a compensation film having two layers of positive birefringent material.

Aminaka also clearly states (col. 4, line 24 – line 27)

> The positive optical anisotropy (of Vertically-aligned LC) is compensated by an optically anisotrpic layer, in more detail by a negative optical anisotropy of a discotic compound.

In addition, compensation films as disclosed by Aminaka, refs 53, 54, 63, 64 in Figs. 5 and 6 are clearly shown to have one base and a single discotic negatively birefringent compensator layer. When a single layer is positive, the resulting viewing angle characteristic is unsatisfactory. The present inventors have found the proper compensation film, when containing positive birefringence, must have two layers, and must be oriented in a particular way, as described in Claim 1.

**Applicants' response to the rejection in paragraphs E and F**

Examiner states that "Shimoshikiryoh discloses (paragraph 0134-0135; Fig 4) that two positive plates are disclosed. However, the two positive plates are significantly different from Claim 1 of the present invention.

Shimoshikiryoh (para 0134) states "the axis of the refractive index ellipse which has the maximum refractive index (i.e., the phase-delay axis) (the direction indicated by an arrow 125 or 126 in Fig. 4) is arranged to be parallel to the substrate surface." Shimoshikiryoh (para 0135) also states that "The third phase difference compensators 104 and 105 typically have a biaxial refractive index anisotropy, and the phase-delay axis (the direction indicated by an arrow 121 or 122 in Fig.4) is arranged to be parallel to the direction normal to the substrate surface so as to compensate for the change in transmissivity associated with the change in viewing angle."

Note Shimoshikiryoh states many times, including paragraph 0133, that "the director of the liquid crystal molecules in the first domain 101a and the director of the liquid crystal molecules in the second domain 101b are oriented to form an azimuth angle of about $180^0$ with respect to each other." This liquid crystal layer is not a Vertically Aligned LCD.

Further, Shimoshikiryoh does not teach any tilt of the optic axis in the phase difference compensators. Had such compensators been used in a VA-LCD, the viewing angle characteristic would be deteriorated.

Applicants' response to the rejection in paragraph G

> The Examiner states that "Okazaki discloses (col. 2, lines 12- 41) that it is known that the optical compensatory sheet is needed to have negative birefringence for compensating positive birefringence of the twisted nematic liquid crystal and an inclined optic axis. Such that the compensation film is needed to have a positive birefringence for compensating the negative optical anisotropy with an axis along the normal of the substrate, and that would have been at least obvious variation."

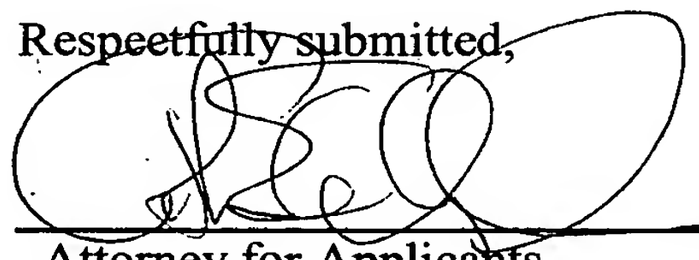
The Applicants are puzzled by this statement because this statement again teaches away from the invention. According to the Examiner, it is known in the art that the vertical aligned liquid crystal materials have positive birefringence.

Thus, according to the teaching, as cited by the Examiner, the compensation film should have negative birefringence. This is totally different from the present invention which uses materials of positive birefringence. Of course, just randomly picking up any positive birefringence would not compensate the positive birefringence of the VA LCD. This makes the present invention non-obvious even in view of use of positive birefringence such as disclosed by Shimoshikiryoh. In order to compensate for VA LCD, the compensation film needs to have two layers of positive birefringent materials over a base film, AND the optical axis of the birefringent layers must be tilted and arranged in a particular way as set forth in Claim 1 of the present invention. There is no apparent reason given by the Examiner that would have provided motivation for one of ordinary skill in the art to combine the selective teachings of the three cited references to arrive at the invention.

The rejections of the remaining claims are dependent on the above combination for the rejection of claim 1. Since that rejection is invalid, the rejections of the remaining claims are likewise invalid.

The Examiner is respectfully requested to withdraw the outstanding rejection and to pass the subject application to Allowance.

Respectfully submitted,



Arthur E. Kluegel/dlm
Telephone: 585-477-2625
Facsimile: 585-477-1148
Enclosures

Attorney for Applicants
Registration No. 25,518

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.